CLAIMS

1. A method for improving the sequence fidelity of synthetic double-stranded oligonucleotides, comprising subjecting synthetic double-stranded oligonucleotides to preparative column chromatography or gel chromatography under denaturing conditions sufficient to separate synthetic double-stranded oligonucleotides into two populations of which one population is enriched for synthetic failures and the other population is depleted of synthetic failures.

2. A method according to claim 1, wherein the column chromatography is HPLC.

3. A method according to claim 1, wherein the column chromatography is DHPLC.

4. A method according to claim 1, wherein the gel chromatography is gradient gel chromatography.

5. A method according to any one of claims 1-4, wherein the oligonucleotides comprise synthetic double-stranded DNA.

6. A method according to claim 5, wherein the DNA comprises one or more fragments of a larger DNA molecule.

7. A method according to any one of claims 1-4, wherein the side product separated is a molecule containing a uridine, apurinic, apyrimidinic or diaminopurine residue.

8. A method according to any one of claims 1-4, wherein the double-stranded oligonucleotides are synthesized chemically.

9. A method according to claim 8, wherein the oligonucleotides comprise double-stranded DNA.

10. A method according to claim 9, wherein the DNA comprises one or more fragments of a larger DNA molecule.